

THE BERNARD M. BARUCH COLLEGE

OF

THE CITY UNIVERSITY OF NEW YORK

17 LEXINGTON AVENUE • NEW YORK, N. Y. 10010

673-7700

STATISTICAL TRAINING PROJECT

October 24, 1972

RECEIVED OCT 26 1972

Mr. H. Thomas Austern
Covington & Burling
888 Sixteenth Street N.W.
Washington, D.C. 20006

Dear Mr. Austern:

As requested, I have examined the data records consisting of laboratory determination calculation sheets and the statistical summary sheets, which you represented to me to be copies of original data sheets compiled by the Federal Trade Commission and used as the basis of figures on 'tar' (Dry) TPM and nicotine yields of various brands of cigarettes as well as the final reports on these data released by the Federal Trade Commission.

It was the data sheets for the 'tar' and nicotine figures released by the Federal Trade Commission under the date August 16, 1972, which I examined and upon which I report in this letter.

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The nicotine and 'tar' figures compiled by the Federal Trade Commission laboratory are now required to be included in cigarette advertising. It is obvious that such figures should be meticulously compiled with great regard to the accuracy and integrity of the published values. I have found much in my examination which indicates that such care is not being exercised.

My examination of the basic laboratory sheets for this test (Number 11), while showing an increase in the number of calculational errors, indicates a continuing low level of such errors as compared with earlier tests¹, shows considerable evidence of carelessness in recording figures, including the entry of obviously impossible figures, indecipherable figures, widespread discarding of laboratory results and a large number of results

¹The prior 10 tests performed by the Federal Trade Commission laboratory were dated November 20, 1967 (No. 1), June 11, 1968 (No. 2), October 10, 1968 (No. 3), February 27, 1969 (No. 4), July 9, 1969 (No. 5), November 19, 1969 (No. 6), May 18, 1970 (No. 7), October 21, 1970 (No. 8), August 1971 (No. 9), March 1972 (No. 10).

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altered by pasting over the forms with other data. This evidence is examined in detail later in this report.

As in prior tests, my examination of the basic data sheets showed evidence of variations of an unknown nature, resulting in wide swings in the daily averages as well as shifts over extended periods of time in the levels of the reported data. The phenomena are similar to those reported in my prior letters for previous Federal Trade Commission test data.

A. Calculational Errors

No matter how carefully the laboratory determinations are conducted, the results are of little value unless the subsequent recording of the values obtained are properly handled and the resulting calculations are accurate. There is considerable evidence that there is a lack of care in handling the data. These deficiencies are reviewed below. They cast considerable doubt on the validity of the published data.

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While the number of calculational errors of an arithmetic nature doubled from 4 in the last analysis to 8 in this test, the level of such errors remained quite low as compared to the number in earlier tests. These errors are listed in Appendicies VII and VIII.

However, in addition there were a number of cases in which the use of the recorded figures gave impossible results, not related to the calculated values recorded. For instance, in one run the weight of the filter after smoking was reported as less than before. Of course, such a result is not possible.

There were 9 instances of impossible values which were found. These are detailed in Appendicies VII and VIII.

It is possible to establish what these values were interpreted to be by the persons performing the calculations by inverse calculation since the values entered are reasonable. However, there is no certainty as to the values that were actually achieved in the measurement and which they should have used.

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Further, it is to be noted that in some instances the data obtained in the determinations were recorded on the laboratory sheets in a virtually illegible scrawl. Some of the figures cannot be readily deciphered and may be interpreted by various readers as different values.

Once again it is possible to imply the interpretation of the recorded value used by the person who did the calculations by reverse calculation, but there is no certainty that the interpretation actually used was correct.

The errors and lack of care in recording the figures certainly create doubt as to the accuracy of all of the recorded values and raise serious questions as to the accuracy of recording of all experimental results, since there is no way of establishing their accuracy or inaccuracy for entries other than values which are obviously impossible.

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B. Discards

In my last analysis, it was noted that a considerable amount of data on the laboratory sheets were discarded by merely stamping the column for a run (and port) 'deleted'. It was observed that such a practice falsely gives an impression of much greater uniformity of test results than actually exist in fact.

It was pointed out that the Federal Trade Commission follows the practice of discarding 'unusual' nicotine and 'tar' determinations and not including these values in the reported averages.

While there was a decline in the number of deletions as compared with the previous test, the total number of such discards remains far above the level found for tests prior to Test No. 10. The number of discards in the various tests are shown below.

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Nicotine and TPM Determinations
Discarded in Tests 5 Through 11

<u>Number of Discards</u>			
<u>Test Number</u>	<u>Monitor Cigarettes</u>	<u>Brand Cigarettes</u>	<u>Total</u>
5	77	62	139
6	19	72	91
7	94	272	366
8	17	76	93
9	158	232	390
10	436	235	667
11	333	193	526

Reportedly, the discards are the result of a statistical 'outlier' test. However, the high rate of discards raises serious questions about the use of such an outlier test in this situation or perhaps the accuracy of the laboratory performance.

As previously observed, an outlier test is useful in the elimination of extreme values which arise from experimental failures, when a uniform sample is tested, as in aliquots of a well mixed solution.

However, in spite of the best efforts of cigarette manufacturers, cigarettes must vary considerably

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because of the inherent variability of the agricultural product used (tobacco) and the nature of the manufacturing process. Thus, individual wide variations may be expected from cigarette to cigarette. Since the consumer uses the cigarette as received, there seems to be little justification for discarding values unless supported by specific evidence of laboratory mistakes.

However, the tremendous number of such deletions indicates more deletions than might be expected from such an outlier test method and gives rise to suspicion of a considerable number of failures or mistakes in the execution of laboratory procedures or in recording the measurements. Once again, this situation gives rise to a serious question as to the validity of the published 'tar' and nicotine averages, which manufacturers are required to include in their advertising.

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C. Data Alterations

My report on the analysis of the results for Test No. 10 pointed out that an examination of the copies of the laboratory sheets showed evidence for a considerable number of sheets, that some of the columns relating to individual determinations, were altered, possibly by piecing or pasting over the column.

There is now clear evidence that such pasting over of prior results in fact did take place. The sheets attached as Appendix IX where the piecing was done carelessly, show evidence of partially covered prior recorded figures at the bottom of the column. For instance, on the attached sheet (Appendix IX) for sample 172-112 for the assay date 8 May 1972, Run #1, Port #9, not only is it clear that the column has been pasted over, but the prior figure for the number of puffs for the discarded value can be partially seen. While not completely visible, it is quite clear that it was a different figure from that in the replacement

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run. Two other similar sheets with such alterations are attached.

These instances of deletion by covering over the data do not seem to be unusual. In fact, the total number of such alterations apparent for the current test (No. 11) is 854. Of these alterations 65 are for monitor tests while 789 are for brand tests. A listing of the instances for which such alterations were established is contained in Appendix V and Appendix VI.

It is to be noted that the number of such 'paste overs' or data alterations increased from those in Test No. 10 where the total was found to be 801 (730 for brand tests and 71 for monitor tests).

It is not known why these alterations were made. Unless some adequate explanation is forthcoming, it must be assumed that these are an additional, but hidden form of deletion, which must be added to the stated deletions discussed above.

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However, regardless of the reason, sound laboratory practice requires that all experimental results be recorded and that if the values are dropped for any reason, the original data must still be available, with the reason for the discard noted.

This practice of unexplained and hidden data deletions only serves to cast further strong suspicion as to the accuracy and validity of the FTC test results.

By act of Congress, the cigarette manufacturers are now required to publish figures relative to the 'tar' and nicotine content of their cigarettes, which at their very best seem to be questionable.

D. Variations In Test Levels

In accordance with sound scientific methods, the Federal Trade Commission laboratory included control (monitor) cigarettes in their smoking runs for the determination of nicotine and 'tar' (Dry) TPM delivery levels of the brands of cigarettes tested. These cigarettes are samples from a homogenous larger

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group of cigarettes prepared espeically for this purpose. All Smoking machine runs are said to have included several ports which are dedicated to the smoking of these monitor cigarettes, the results of which are processed in the same manner as the brands being tested.

The purpose of such control (or monitor) cigarettes is to detect shifts or unusual variations arising out of changes in laboratory conditions, such as variations in the smoking machines, laboratory conditions, etc.

Customarily, when 'controls' are used and indicate shifts or unusual variations in the levels of experimental results, all of the data in that run are rejected or alternatively adjusted by the amount of the variation reflected in monitor test results. However, this does not seem to have been done for the FTC results.

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The results of the tests of monitor cigarettes were summarized by the Federal Trade Commission in a set of daily summary sheets.²

There is evidence that for some undetermined reason, the level of 'tar' (Dry) TPM suddenly shifted downward for the tests of monitor cigarettes performed during the period May 11 to June 13, 1972, as contrasted with the earlier period March 27 to May 10, 1972. The average "tar" (Dry) TPM values for the monitor cigarettes declined to 18.41 mgm as contrasted with 18.71 mgm for the first period. In similar fashion, the majority of the Dry TPM averages for brand cigarettes also fell during the later period. There were many more brands with higher Dry TPM averages during the March 27 to May 10, 1972 period than for the balance of the period.

²The daily average result for 'tar' (Dry) TPM determinations for the monitor cigarettes are listed in Appendix I.

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Federal Trade Commission
Test Data Dated August 1972
TPM (Dry) Determinations

<u>Period</u>	<u>Monitor Cigarettes Average TPM (Dry) in mgm</u>	<u>Brand Cigarettes* # of Brands With Higher Averages Than Other Period</u>
March 27 to May 10, 1972	18.71	118
May 11 to June 13, 1972	18.41	<u>22</u> 140

*Calculations were carried to additional decimals in a few cases to reduce the number of ties. However, there were 2 brands with identical averages for both periods. These are not included in the above table. The daily averages for the above brands for each period are shown in Appendix II.

If there were no shifts in the brand levels between the two periods, it would be expected that half of the TPM (Dry) averages would be higher in each of the two periods. This is definitely not so in this situation. The probability that as many as 118 out of 140 brands would be higher for the first period due purely to chance, when the two levels are really the same, is less than .00001. Therefore, it may be said that the difference is statistically significant and not due to chance variation.

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As reported previously, there is continuing evidence of shifts in the results for individual days as evidenced by the values obtained for the monitor cigarettes for certain days as compared with others.

The table below illustrates two of these gyrations in the daily figures for TPM (Dry) where the results for the runs on June 1, 1972 were unusually low for both monitor and brand cigarettes, while they were unusually high for tests conducted on April 25, 1972.

Federal Trade Commission
Test Data Dated August 1972
TPM (Dry) Determinations

<u>Test Day</u>	<u>Monitor Cigarettes</u>		<u>Brand Cigarettes*</u>	
	<u>Average</u> <u>For Day</u>	<u>Overall**</u> <u>Average</u>	<u>Number</u> <u>Below</u> <u>Average</u>	<u>Number</u> <u>Above</u> <u>Average</u>
June 1, 1972	18.18	18.60	39	25
April 25, 1972	19.13	18.58	17	42

*For those brands for which tests were conducted in part on the specified days.

**Excluding value for specified day.

NOTE: For June 1, 1972, there were 4 brands with results equal to the average when computed to one tenth of of mgm, while for April 25, 1972, there were 5 such cases. The results for the brands for the specified days and their averages are given in Appendix III and Appendix IV.

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It is apparent from the above data that when determinations for the monitor cigarettes ran high for a given day, the results for brand tests for that day were preponderantly above average, while for days on which the monitor cigarette TPM (Dry) averages were low, tests for individual brands were predominately below average. Statistical tests of significance³ indicate that the number of brands above or below average on the two days differed to an extent which cannot be ascribed as due to chance.

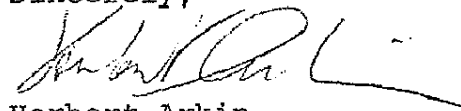
It is evident on the basis of the data analysis presented above that the laboratory determinations are subject to short term fluctuation and that, as a result, the determination of a precisely accurate absolute figure for average 'tar' and nicotine for any brand is not possible with the laboratory conditions which exist.

³The application of the chi-square test to the frequency of occurrence of values above and below average for the two days indicate that the probability of a difference of this sort being due to chance is less than .001. This disparity may be said to be statistically significant.

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Further, it must be concluded that comparisons of 'tar' and nicotine levels between successive tests, in an attempt to show shifts of these levels, are of dubious validity.

Sincerely,

A handwritten signature in dark ink, appearing to read 'Herbert Arkin', with a long horizontal flourish extending to the right.

Herbert Arkin

HA:lpc

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Appendix I
Federal Trade Commission
Data Dated August 1972
Tar (TPM) Dry Determinations
Monitor Cigarettes
March 27, 1972 to June 20, 1972

<u>Date</u>	<u>Average TPM</u> <u>(Dry) *nom</u>
March 27, 1972	18.61
March 28, 1972	18.98
April 5, 1972	*19.03
April 6, 1972	18.77
April 7, 1972	18.78
April 10, 1972	18.85
April 11, 1972	18.53
April 12, 1972	18.69
April 13, 1972	18.68
April 19, 1972	18.45
April 20, 1972	18.54
April 21, 1972	18.44
April 24, 1972	18.40
April 25, 1972	19.13
April 26, 1972	18.87
April 27, 1972	18.98
April 28, 1972	18.74
May 1, 1972	18.45
May 2, 1972	18.52
May 8, 1972	18.44
May 9, 1972	18.87
May 10, 1972	18.90
May 11, 1972	18.39
May 12, 1972	18.22
May 15, 1972	18.23
May 16, 1972	18.32
May 17, 1972	18.85
May 18, 1972	*18.46
May 19, 1972	18.53
May 23, 1972	*18.50
May 24, 1972	18.41
June 1, 1972	18.18
June 2, 1972	18.35
June 5, 1972	18.74
June 6, 1972	18.30
June 7, 1972	*18.28
June 8, 1972	18.70
June 9, 1972	18.27
June 12, 1972	18.22
June 13, 1972	*18.48
June 14, 1972	18.86
June 15, 1972	18.84
June 16, 1972	18.86
June 20, 1972	18.49

* Corrected for errors.

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Appendix II
Federal Trade Commission
Data Dated August 1972
Tar (TPM Dry) Determinations
By Brands

<u>Sample Number</u>	<u>Brand</u>	<u>Average TPM (Dry) mgm</u>	
		<u>3/27/72- 5/10/72</u>	<u>5/11/72- 6/13/72</u>
172-1	Adam kf,sp,85mm	18.49	17.56
2	Alpine kf,sp,m,85mm	*15.46	15.48
3	American Brand kf,hp,80mm	19.23	19.00
4	American Brand kf,sp,85mm	20.96	20.19
5	Belair kf,sp,m,85mm	17.41	16.67
6	Belair f,sp,m,100mm	18.60	17.50
7	Benson & Hedges reg, hp,70mm	12.99	11.33
8	Benson & Hedges kf,hp,85mm	16.25	16.34
9	Benson & Hedges f,sp,100mm	18.84	18.72
10	Benson & Hedges f,sp,m,100mm	19.52	19.33
11	Bull Durham kf,sp,85mm	30.09	29.87
12	Camel reg,sp,nf,70mm	25.47	24.63
13	Camel kf,sp,85mm	20.71	20.11
14	Camel Talls sp,f,100mm	20.15	19.96
15	Carlton 70's rf,sp,70mm	* 1.33	1.30
16	Carlton kf,sp,85mm	3.47	3.07
17	Carlton kf,sp,m,85mm	3.81	3.66
18	Chesterfieldrnf,sp,70mm	25.05	25.69
19	Chesterfield knf,sp,85mm	28.26	27.85
20	Chesterfield kf,sp,85mm	19.25	18.42
21	Chesterfield kf,sp,m,85mm	18.32	17.53
22	Chesterfield 101,f,sp,101mm	19.14	19.15
23	Domino knf,sp,85mm	25.81	**25.44
24	Domino kf,sp,85mm	21.09	21.31
25	Doral kf,sp,85mm	15.27	15.09
26	Doral kf,sp,m,85mm	**14.74	14.38
27	DuMaurier kf,hp,85mm	16.51	15.93
28	Edgeworth Export kf,hp,85mm	17.22	17.01
29	Edgeworth Export f,sp,100mm	17.39	17.13
30	English Ovals rnf,sp,70mm	*22.92	22.91
31	English Ovals knf,hwp,85mm	28.80	27.85
32	Eve f,sp,100mm	17.93	17.24
33	Eve f,sp,m,100mm	17.39	17.29
34	Fatima knf,sp,85mm	29.22	27.56
35	Frappe kf,sp,m,85mm	9.62	9.33
36	Galaxy kf,sp,85mm	20.00	19.05
37	Half & Half kf,sp,85mm	24.80	23.79
38	Hebert Tareyton knf,sp,85mm	28.87	27.74
39	Home Run rnf,sp,70mm	19.41	17.25
40	Kent rf,sp,70mm	9.96	9.77

*Carried to two decimal points to break tie.

**Corrected for errors

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Appendix II - Continued

Average TPM (Dry) mgm

Sample Number	Brands	3/27/72- 5/10/72	5/11/72- 6/13/72
172-41	Kent kf,hp,80mm	16.68	16.13
42	Kent kf,sp,85mm	17.15	16.36
43	Kent kf,sp,m,85mm	17.73	18.29
44	Kent f,sp,100mm	19.77	18.86
45	Kent f,sp,m,100mm	18.65	18.29
46	King Sano kf,sp,85mm	* 6.76	6.79
47	King Sano kf,sp,m,85mm	6.24	6.00
48	Kool rnf,spm,70mm	20.86	19.97
49	Kool kf,sp,m,85mm	18.38	17.57
50	Kool f,sp,m,100mm	18.49	18.19
51	L&M kf,hp,80mm	17.43	17.06
52	L&M kf,sp,85mm	19.02	19.06
53	L&M f,sp,100mm	*19.13	19.08
54	L&M f,sp,m,100mm	18.26	18.51
55	Lark kf,sp,85mm	17.10	16.98
56	Lark f,sp,100mm	18.33	17.71
57	Life f,sp,100mm	9.94	9.32
58	Lucky Strike rnf,sp,70mm	27.79	26.06
59	Lucky Filters kf,sp,85mm	21.36	20.17
60	Lucky Filters f,sp,100mm	*21.66	21.70
61	Lucky Ten kf,sp,85mm	9.79	9.79
62	Lyne kf,sp,menthol lime flavor 85mm	14.88	14.34
63	Mapleton rnf,sp,70mm	27.12	26.08
64	Mapleton kf,sp,85mm	24.55	23.84
65	Marlboro kf,hp,80mm	17.91	18.17
66	Marlboro kf,sp,85mm	18.69	18.26
67	Marlboro kf,sp,m,85mm	16.10	15.66
68	Marlboro f,hp,100mm	19.34	18.70
69	Marlboro f,sp,100mm	**19.59	19.08
70	Marlboro Lights kf,sp,85mm	13.43	13.31
71	Marvels rf,sp,70mm	3.44	3.46
72	Marvels knf,sp,85mm	23.95	22.69
73	Marvels kf,sp,85mm	5.07	5.31
74	Marvels kf,sp,m,85mm	* 4.09	4.08
75	Maryland f,sp,m,100mm	19.80	19.59
76	Maverick kf,sp,85mm	20.34	19.79
77	Mermaid f,sp,m,100mm	20.23	19.36
78	Montclair kf,sp,m,85mm	18.29	18.80
79	Multifilter kf,pb,85mm	14.69	14.53
80	Multifilter kf,pb,m,85mm	11.46	11.08
81	Newport kf,hp,m,80mm	19.31	18.32
82	Newport(CA)kf,hp,m,80mm	19.06	19.18
83	Newport kf,sp,m,85mm	**18.97	18.80
84	Newport (CA)kf,sp,m,85mm	18.12	17.70
85	Newport f,sp,m,100mm	*21.66	21.71
86	Newport(CA) f,sp,m,100mm	23.91	23.51

*Carried to two decimal points to break tie.

**Corrected for errors.

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Appendix II - continued

Sample Number	Brands	Average TPM (Dry) mgm	
		3/27/72- 5/10/72	5/11/72- 6/13/72
172-87	Oasis kf,sp,m,85mm	18.96	18.00
88	Old Gold Straights rnf,sp,70mm	21.05	19.76
89	Old Gold Straights knf,sp,85mm	25.91	25.30
90	Old Gold Filters k,f,sp,85mm	20.42	19.72
91	Old Gold 100's f,sp,100mm	25.06	25.01
92	Pall Mall knf, sp, 85mm	*27.29	27.26
93	Pall Mall f,hp,100mm	18.45	17.88
94	Pall Mall f,hp,m,100mm	18.10	17.25
95	Pall Mall f,sp,100mm	20.02	19.83
96	Pall Mall f,sp,m,100mm	17.83	17.10
97	Pall Mall kf,hp,80mm	18.32	18.48
98	Pall Mall kf,sp,85mm	20.67	19.72
99	Parliament kf,hp,80mm	**15.44	15.12
100	Parliament kf,sp,85mm	15.73	15.48
101	Parliament 100's f,sp,100mm	19.09	18.76
102	Parliament Charcoal F,k,hp,80mm	16.19	15.54
103	Parliament Charcoal F,k,sp,85mm	15.79	15.05
104	Peter Stuyvesant kf,sp,85mm	20.45	19.43
105	Peter Stuyvesant f,sp,100mm	*20.02	20.04
106	Philip Morris rnf,sp,70mm	24.41	22.83
107	Philip Morris Commander knf,sp,85mm	29.33	28.55
108	Picayune rnf,sp,70mm	19.31	18.52
109	Piedmont rnf,sp,70mm	23.74	22.53
110	Pinnacle kf,sp,85mm	9.83	9.41
111	Players rnf,hwp,70mm	33.81	33.14
112	Raleigh knf,sp,85mm	26.10	25.04
113	Raleigh kf,sp,85mm	17.41	16.79
114	Raleigh f,sp,100mm	19.48	18.88
115	St. Moritz,f,sp,100mm	22.25	21.86
116	St. Moritz f,sp,m,100mm	20.50	19.79
117	Salem kf,sp,m,85mm	20.00	19.80
118	Salem f,sp,m,100mm	20.29	19.38
119	Sano rnf,sp,70mm	16.00	16.10
120	Sano rf,sp,70mm	3.25	3.09
121	Silva Thins f,sp,100mm	15.79	15.67
122	Silva Thins f,sp,m,100mm	15.61	15.51
123	Spring f,sp,m,100mm	20.41	20.55
124	Stratford k,nf,sp,85mm	28.37	26.46
125	Stratford,kf,sp,85mm	18.12	17.78
126	Tareyton kf,sp,85mm	20.58	20.58
127	Tareyton 100's f,sp,100mm	20.61	19.71
128	Tempo kf,sp,85mm	11.41	11.89
129	True (Blue) kf,sp,85mm	12.33	12.43
130	True (Green)kf,sp,m 85mm	12.35	11.90

*Carried to two decimal points to break tie.

**Corrected for errors.

Appendix II - continued

<u>Sample Number</u>	<u>Brands</u>	Average TPM (Dry) mgm	
		<u>3/27/72- 5/10/72</u>	<u>5/11/72- 6/13/72</u>
172-131	Vantage kf,sp,85mm	12.14	11.23
132	Vantage kf,sp,m,85mm	11.72	11.28
133	Viceroy kf,sp,85mm	17.51	17.31
134	Viceroy f,sp,100	19.55	19.13
135	Virginia Slims, f,sp,100mm	17.48	17.07
136	Virginia Slims f,sp,m,100mm	18.06	17.62
137	Vogue (Black) kf,hwp,85mm	29.10	26.78
138	Vogue (Color) kf,hwp,85mm	21.49	20.38
139	Winston kf,hp,80mm	19.89	18.97
140	Winston kf,sp,85mm	21.02	20.80
141	Winston f,sp,100mm	20.98	20.41
142	Winston f,sp,m,100mm	20.11	19.69

*Carried to two decimal points to break tie.
 **Corrected for errors.

Appendix III
Federal Trade Commission
Data Dated August 1972
TPM (Dry) mgm Determinations
By Brands

<u>Sample Number</u>	<u>Brands</u>	<u>Average TPM (Dry) mgm</u>	
		<u>4/25/72</u>	<u>Overall Excluding 4/25/72</u>
172-1	Adam kf,sp,85mm	18.7	18.0
2	Alpine kf,sp,m,85mm	15.6	15.5
4	American Brand kf,sp,85mm	21.4	20.6
7	Benson & Hedges r,hp,70mm	13.4	12.2
9	Benson & Hedges f,sp,100mm	18.6	18.9
11	Bull Durham kf,sp,85mm	28.5	30.1
12	Camel r,sp,nf,70mm	27.4	25.0
13	Camel kf,sp,85mm	21.2	20.4
14	Camel Talls f,sp,100mm	20.2	20.2
17	Carlton kf,sp-m,85mm	4.2	3.7
26	Doral kf,sp,m,85mm	14.1	*14.6
33	Eve f,sp,m,100mm	18.8	17.2
34	Fatima knf,sp,85mm	31.0	28.4
37	Half & Half kf,sp,85mm	25.0	24.4
38	Herbert Tareyton knf,sp,85mm	27.8	28.6
40	Kent rf,sp,70mm	10.6	9.8
41	Kent kf,hp,80mm	17.3	16.4
43	Kent kf,sp,m,85mm	17.3	18.1
44	Kent f,sp,100mm	20.9	19.3
45	Kent f,sp,m,100mm	19.3	18.5
47	King Sano kf,sp,m,85mm	6.8	6.0
51	L & M kf,hp,80mm	17.0	17.2
54	L & M f,sp,m,100mm	18.2	18.4
59	Lucky Filters kf,sp,85mm	22.2	20.8
60	Lucky Filters f,sp,100mm	21.8	21.7
61	Lucky Ten kf,sp,85mm	10.6	9.8
64	Mapleton kf,sp,85mm	24.2	24.3
67	Marlboro kf,sp,m,85mm	16.3	15.9
68	Marlboro f,hp,100mm	19.9	19.2
70	Marlboro Lights kf,sp,85mm	14.7	13.4
72	Marvels knf,sp,85mm	23.5	23.5
74	Marvels kf,sp,m,85mm	4.4	4.1
77	Mermaid f,sp,m,100mm	21.5	19.8
78	Montclair kf,sp,m,85mm	18.3	18.3
85	Newport f,sp,m,100mm	21.8	21.7
88	Old Gold Straights rnf,sp,70mm	20.7	20.5
90	Old Gold Filter kf,sp,85mm	20.2	20.2
92	Pall Mall knf,sp,85mm	26.6	27.5
93	Pall Mall f,hp,100mm	19.1	18.2
94	Pall Mall f,hp,m,100mm	18.5	17.7
95	Pall Mall f,sp,100mm	19.2	20.0
96	Pall Mall f,sp,m,100mm	17.4	17.5
97	Pall Mall kf,hp,80mm	19.7	18.4
98	Pall Mall kf,sp,85mm	20.8	20.2

*Corrected for errors.

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Appendix III - Continued

<u>Sample Number</u>	<u>Brands</u>	Average TPM (Dry) mgm	
		<u>4/25/72</u>	<u>Overall Excluding 4/25/72</u>
172-100	Parliament kf,sp,85mm	16.7	15.5
101	Parliament 100's f,sp,100mm	20.1	18.9
102	Parliament Charcoal Filter hp,k,80mm	17.2	15.9
103	Parliament Charcoal Filter k,sp,85mm	16.0	15.4
104	Peter Stuyvesant kf,sp,85mm	19.2	20.0
105	Peter Stuyvesant f,sp,100mm	19.9	20.0
107	Philip Morris Commander knf,sp,85mm	30.5	29.0
108	Picayune rnf,sp,70mm	18.4	19.0
117	Salem kf,sp,m,85mm	20.2	19.8
118	Salem f,sp,m,100mm	18.2	19.9
120	Sano rf,sp,70mm	3.6	3.1
122	Silva Thins f,sp,m,100mm	16.8	15.5
126	Tareyton kf,sp,85mm	20.4	20.6
127	Tareyton 100's f,sp,100mm	20.1	20.1
128	Tempo kf,sp,85mm	12.4	11.6
132	Vantage kf,sp,m,85mm	12.7	11.4
134	Viceroy f,sp,100mm	19.2	19.4
138	Vogue (Color) kf,hwp,85mm	21.5	21.0
140	Winston kf,sp,85mm	21.8	20.8
141	Winston f,sp,100mm	22.2	20.6

Appendix IV
Federal Trade Commission
Data Dated August 1972
TPM (Dry) mgm Determinations
By Brands

		Average TPM (Dry) mgm	
Sample Number	Brands	6/1/72	Overall Excluding 6/1/72
172-4	American Brand kf,sp,85mm	20.4	20.6
5	Belair kf,sp,m,85mm	16.3	17.1
6	Belair f,sp,m,100mm	18.6	18.0
7	Benson & Hedges r,hp,70mm	9.8	12.4
15	Carlton 70's rf,sp,70mm	.9	1.3
16	Carlton kf,sp,85mm	2.5	3.3
23	Domino knf,sp,85mm	24.6	**25.9
24	Domino kf,sp,85mm	21.5	21.2
27	DuMaurier kf,hp,85mm	*15.8	16.3
30	English Ovals rnf,sp,70mm	23.5	22.9
34	Fatima knf,sp,85mm	*28.3	28.6
38	Herbert Tareyton knf,sp,85mm	28.3	28.5
40	Kent rf,sp,70mm	10.5	9.8
41	Kent kf,hp,80mm	17.1	16.4
45	Kent f,sp,m,100mm	17.6	18.6
48	Kool rnf,sp,m,70mm	16.9	20.6
50	Kool f,sp,m,100mm	18.5	18.3
54	L&M f,sp,m,100mm	18.0	18.4
58	Lucky Strike rnf,sp,70mm	*24.4	27.3
59	Lucky Filters kf,sp,85mm	22.1	20.8
60	Lucky Filters f,sp,100mm	23.1	21.6
61	Lucky Ten kf,sp,85mm	8.4	9.9
62	Lyme kf,sp,m,lime flavor 85mm	15.1	14.7
63	Mapleton rnf,sp,70mm	26.3	26.6
66	Marlboro kf,sp,85mm	17.9	18.5
68	Marlboro f,hp,100mm	18.3	19.2
70	Marlboro Lights kf,sp,85mm	13.2	13.5
74	Marvels kf,sp,m,85mm	3.7	4.1
75	Maryland f,sp,m,100mm	19.3	19.7
77	Mermaid f,sp,m,100mm	19.8	19.9
81	Newport kf,hp,m,80mm	18.4	18.8
82	Newport (CA) kf,hp,m,80mm	19.5	19.2
84	Newport (CA) f,sp,m,85mm	17.6	17.9
86	Newport (CA) f,sp,m,100mm	24.0	23.6
88	Old Gold Straights rnf,sp,70mm	20.8	20.5
89	Old Gold Straights knf,sp,85mm	25.0	25.7
90	Old Gold Filter kf,sp,85mm	18.8	20.2

*More than one test run on June 1, 1972 for a particular brand.
The average of the test run was used.

**Corrected for errors.

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Appendix IV - Continued

Sample Number	Brands	Average TPM (Dry) mgm	
		6/1/72	Overall Excluding 6/1/72
172-91	Old Gold 100's f,sp,100mm	25.2	25.0
93	Pall Mall f,hp,100mm	17.4	18.3
95	Pall Mall f,sp,100mm	19.9	19.9
97	Pall Mall kf,hp,80mm	19.2	18.4
98	Pall Mall kf,sp,85mm	18.7	20.3
99	Parliament kf,hp,80mm	15.4	**15.3
100	Parliament kf,sp,85mm	14.5	15.6
107	Philip Morris Commander knf,sp,85mm	29.1	29.1
108	Picayune rnf,sp,70mm	17.0	19.1
110	Pinnacle kf,sp,85mm	10.0	9.6
111	Players rnf,hwp,70mm	33.6	33.5
113	Raleigh kf,sp,85mm	16.4	17.2
116	St. Moritz f,sp,m,100mm	18.5	20.3
117	Salem kf,sp,m,85mm	21.5	19.7
118	Salem f,sp,m,100mm	19.3	19.9
119	Sano rnf,sp,70mm	16.7	16.1
121	Silva Thins f,sp,100mm	17.5	15.6
122	Silva Thins f,sp,m,100mm	15.3	15.6
123	Spring f,sp,m,100mm	19.9	20.5
127	Tareyton 100's f,sp,100mm	20.1	20.1
129	True (Blue) kf,sp,85mm	12.4	12.4
130	True (Green) kf,sp,m,85mm	12.4	12.2
132	Vantage kf,sp,m,85mm	10.2	11.6
134	Viceroy f,sp,100mm	18.6	19.4
135	Virginia Slims f,sp,100mm	17.8	17.1
136	Virginia Slims f,sp,m,100mm	20.8	17.7
137	Vogue (Black) kf,hwp,85mm	26.6	28.1
139	Winston kf,hp,80mm	20.4	19.5
140	Winston kf,sp,85mm	20.5	20.9
141	Winston f,sp,100mm	20.9	20.7
142	Winston f,sp,m,100mm	19.5	19.9

*More than one test run on June 1, 1972 for a particular brand.

The average of the test run was used.

**Corrected for errors.

Appendix V
Federal Trade Commission
Data Dated August 1972
Laboratory Sheet Alterations*
Monitor Cigarettes

<u>Date</u>	<u>Run Number</u>	<u>Port Number</u>
June 20, 1972	5	15
June 20, 1972	1	11
June 20, 1972	1	1
June 20, 1972	2	16
June 20, 1972	2	12
June 20, 1972	4	3
June 20, 1972	3	20
June 20, 1972	3	14
June 20, 1972	3	4
June 20, 1972	4	6
June 20, 1972	4	13
June 20, 1972	4	19
May 19, 1972	1	20
June 16, 1972	1	2
June 16, 1972	1	7
June 13, 1972	4	15
June 15, 1972	2	15
June 15, 1972	2	11
June 15, 1972	2	6
June 15, 1972	5	12
June 15, 1972	5	16
June 15, 1972	5	3
June 15, 1972	5	8
June 15, 1972	2	2
April 5, 1972	5	5
April 5, 1972	5	3
April 5, 1972	4	20
June 16, 1972	1	18
June 16, 1972	2	3
June 16, 1972	2	6
June 14, 1972	5	1
June 14, 1972	5	5
June 14, 1972	5	13
June 16, 1972	2	11
June 16, 1972	2	16
June 1, 1972	3	1
June 16, 1972	3	4
June 16, 1972	3	20
April 5, 1972	5	18
April 5, 1972	5	16

*Evidence of piecing or pasting over columns.

Appendix V - Continued

<u>Date</u>	<u>Run Number</u>	<u>Port Number</u>
April 5, 1972	2	15
April 5, 1972	3	2
April 5, 1972	1	8
April 5, 1972	1	12
April 5, 1972	1	15
April 5, 1972	1	19
April 5, 1972	2	3
April 5, 1972	3	5
April 5, 1972	3	20
April 5, 1972	3	7
April 5, 1972	4	4
April 5, 1972	4	13
April 5, 1972	4	8
April 5, 1972	5	11
April 5, 1972	5	9
April 5, 1972	1	1
April 5, 1972	3	15
April 5, 1972	2	11
April 5, 1972	2	12
April 5, 1972	2	14
April 5, 1972	4	17
June 16, 1972	1	12
June 16, 1972	3	14
April 5, 1972	1	14
April 5, 1972	2	6

*Evidence of piecing or pasting over columns.

Appendix VI
Federal Trade Commission
Data Dated August 1972
Laboratory Sheet Alterations*
Brand Cigarettes

<u>Sample Number</u>	<u>Date</u>	<u>Run Number</u>	<u>Port Number</u>
172-1	April 20, 1972	2	13
172-1	April 5, 1972	1	6
172-1	April 21, 1972	1	2
172-1	May 8, 1972	2	3
172-1	June 2, 1972	5	15
172-2	April 6, 1972	2	4
172-2	May 8, 1972	4	20
172-2	May 9, 1972	4	11
172-2	May 23, 1972	4	13
172-2	June 20, 1972	1	2
172-3	April 20, 1972	4	17
172-3	April 6, 1972	4	15
172-3	April 21, 1972	1	14
172-3	May 8, 1972	5	10
172-3	May 9, 1972	1	2
172-3	June 2, 1972	1	1
172-3	June 15, 1972	5	2
172-4	April 5, 1972	3	17
172-4	May 24, 1972	3	18
172-4	June 16, 1972	2	18
172-5	April 20, 1972	1	11
172-5	June 1, 1972	4	13
172-5	April 6, 1972	5	4
172-5	April 19, 1972	2	19
172-5	May 8, 1972	3	20
172-5	May 18, 1972	5	12
172-5	May 24, 1972	5	15
172-6	April 20, 1972	3	10
172-6	May 16, 1972	5	17
172-6	June 1, 1972	3	6
172-6	April 5, 1972	1	11
172-6	May 9, 1972	2	2
172-6	May 24, 1972	1	1
172-6	June 2, 1972	1	8
172-6	June 7, 1972	1	13
172-7	April 20, 1972	3	19
172-7	June 1, 1972	2	15

*Evidence of piecing or pasting over columns.

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Appendix VI- Continued

<u>Sample Number</u>	<u>Date</u>	<u>Run Number</u>	<u>Port Number</u>
172-7	April 6, 1972	4	12
172-7	April 21, 1972	2	13
172-7	May 8, 1972	5	17
172-7	June 2, 1972	4	14
172-8	June 14, 1972	1	6
172-4	June 1, 1972	5	10
172-8	April 6, 1972	1	20
172-8	April 21, 1972	3	1
172-8	June 2, 1972	2	13
172-8	June 20, 1972	1	3
172-9	April 6, 1972	4	3
172-9	April 21, 1972	5	20
172-9	June 14, 1972	2	6
172-9	June 2, 1972	4	11
172-9	June 15, 1972	2	20
172-9	June 20, 1972	1	4
172-10	April 20, 1972	4	14
172-10	April 5, 1972	2	17
172-10	April 21, 1972	2	15
172-10	April 24, 1972	3	16
172-10	May 24, 1972	4	20
172-10	June 15, 1972	2	14
172-10	June 20, 1972	1	6
172-11	April 6, 1972	1	4
172-11	May 9, 1972	2	17
172-11	June 12, 1972	2	18
172-11	June 15, 1972	4	8
172-11	June 15, 1972	2	4
172-12	April 20, 1972	4	4
172-12	April 6, 1972	1	2
172-12	April 21, 1972	4	15
172-12	June 2, 1972	2	3
172-13	April 20, 1972	3	7
172-13	May 15, 1972	4	15
172-13	April 3, 1972	5	8
172-13	June 20, 1972	2	3
172-13	June 20, 1972	1	7
172-14	April 20, 1972	2	9
172-14	June 14, 1972	2	19
172-14	May 8, 1972	4	6
172-14	May 9, 1972	3	14
172-14	June 2, 1972	3	16

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Appendix VI - Continued

<u>Sample Number</u>	<u>Date</u>	<u>Run Number</u>	<u>Port Number</u>
172-14	June 15, 1972	2	5
172-15	April 5, 1972	3	13
172-14	April 5, 1972	5	4
172-15	May 9, 1972	1	16
172-15	June 1, 1972	5	18
172-15	June 20, 1972	1	8
172-16	April 20, 1972	3	6
172-16	June 1, 1972	3	9
172-16	April 21, 1972	1	16
172-16	May 9, 1972	2	10
172-16	June 2, 1972	3	12
172-16	June 20, 1972	1	9
172-17	April 6, 1972	3	19
172-17	April 21, 1972	5	10
172-17	May 9, 1972	3	1
172-17	May 24, 1972	3	13
172-17	May 23, 1972	4	20
172-17	June 20, 1972	1	10
172-18	April 20, 1972	3	15
172-18	April 6, 1972	5	14
172-18	April 21, 1972	3	8
172-18	May 8, 1972	2	5
172-18	May 9, 1972	2	18
172-18	June 2, 1972	4	10
172-18	June 15, 1972	2	8
172-19	April 20, 1972	5	14
172-19	April 6, 1972	1	18
172-19	April 21, 1972	2	8
172-19	May 8, 1972	1	5
172-19	May 9, 1972	3	20
172-19	May 24, 1972	3	15
172-19	June 15, 1972	2	9
172-19	June 16, 1972	2	19
172-20	April 20, 1972	2	7
172-20	April 5, 1972	4	14
172-20	May 8, 1972	3	4
172-20	May 9, 1972	4	9
172-20	May 24, 1972	2	8
172-20	June 2, 1972	4	16
172-21	April 6, 1972	3	5
172-21	May 8, 1972	5	2
172-21	June 8, 1972	1	16

Appendix VI - Continued

<u>Sample Number</u>	<u>Date</u>	<u>Run Number</u>	<u>Port Number</u>
172-21	June 15, 1972	5	4
172-21	June 15, 1972	2	12
172-22	April 6, 1972	5	16
172-22	May 8, 1972	2	14
172-22	May 24, 1972	3	10
172-22	June 15, 1972	2	13
172-22	June 16, 1972	3	19
172-22	June 16, 1972	3	15
172-22	June 20, 1972	1	12
172-23	June 1, 1972	4	4
172-23	April 6, 1972	2	8
172-23	April 21, 1972	5	1
172-23	May 9, 1972	1	19
172-23	June 15, 1972	4	3
172-23	June 20, 1972	1	13
172-24	April 15, 1972	5	19
172-24	June 2, 1972	5	8
172-24	June 20, 1972	1	14
172-24	June 1, 1972	2	6
172-25	April 20, 1972	4	7
172-25	May 8, 1972	2	16
172-25	June 14, 1972	2	4
172-25	May 24, 1972	5	6
172-25	June 2, 1972	1	2
172-26	April 20, 1972	1	16
172-26	April 5, 1972	3	6
172-26	May 8, 1972	4	15
172-26	May 9, 1972	4	18
172-27	April 20, 1972	2	5
172-27	June 1, 1972	1	15
172-27	April 6, 1972	3	7
172-27	April 21, 1972	1	6
172-27	May 9, 1972	1	17
172-27	May 24, 1972	1	11
172-27	June 12, 1972	1	19
172-27	June 1, 1972	1	16
172-24	June 14, 1972	1	10
172-28	April 5, 1972	4	2
172-28	May 24, 1972	5	10
172-28	June 8, 1972	2	13
172-28	June 2, 1972	4	1
172-28	June 16, 1972	3	16
172-28	June 20, 1972	1	16
172-25	April 5, 1972	3	14

Appendix VI - Continued

<u>Sample Number</u>	<u>Date</u>	<u>Run Number</u>	<u>Port Number</u>
172-29	May 16, 1972	2	11
172-29	April 6, 1972	1	5
172-29	April 21, 1972	3	19
172-29	May 24, 1972	3	6.
172-29	June 12, 1972	3	10
172-29	June 12, 1972	3	20
172-29	June 15, 1972	2	19
172-30	April 20, 1972	4	12
172-30	June 1, 1972	4	2
172-30	April 6, 1972	4	20
172-30	April 21, 1972	4	19
172-30	May 9, 1972	4	4
172-30	June 2, 1972	5	18
172-30	June 14, 1972	5	10
172-30	June 13, 1972	1	5
172-31	April 20, 1972	5	13
172-31	April 6, 1972	4	18
172-31	April 19, 1972	5	12
172-31	May 8, 1972	4	1
172-31	May 24, 1972	4	17
172-31	June 14, 1972	5	11
172-32	April 20, 1972	4	1
172-32	April 6, 1972	3	2
172-32	June 14, 1972	5	12
172-33	April 5, 1972	1	7
172-33	May 8, 1972	4	17
172-33	June 14, 1972	5	14
172-34	April 20, 1972	5	18
172-34	June 1, 1972	3	7
172-34	April 6, 1972	1	9
172-34	May 9, 1972	1	8
172-34	June 2, 1972	2	2
172-34	June 1, 1972	4	14
172-34	June 14, 1972	5	15
172-35	April 20, 1972	3	14
172-35	April 5, 1972	2	7
172-35	April 21, 1972	4	4
172-35	May 8, 1972	4	2
172-35	May 9, 1972	2	6
172-35	June 2, 1972	4	18
172-35	June 14, 1972	5	16
172-35	June 20, 1972	5	11
172-36	April 20, 1972	5	15
172-36	May 15, 1972	1	19

Appendix VI - Continued

<u>Sample Number</u>	<u>Date</u>	<u>Run Number</u>	<u>Port Number</u>
172-36	April 5, 1972	1	2
172-36	May 8, 1972	1	17
172-36	May 24, 1972	2	1
172-36	June 13, 1972	5	13
172-37	April 20, 1972	1	12
172-37	June 14, 1972	1	4
172-37	April 6, 1972	2	3
172-37	May 8, 1972	4	19
172-37	May 9, 1972	4	14
172-38	April 5, 1972	5	20
172-38	April 21, 1972	5	2
172-38	April 25, 1972	3	3
172-38	June 12, 1972	5	17
172-38	June 15, 1972	4	16
172-39	April 5, 1972	1	16
172-39	June 2, 1972	3	20
172-40	April 5, 1972	5	17
172-40	May 24, 1972	4	9
172-40	June 9, 1972	1	16
172-41	April 20, 1972	1	7
172-41	June 2, 1972	5	19
172-41	April 6, 1972	3	11
172-41	May 8, 1972	1	4
172-41	May 9, 1972	3	16
172-41	June 1, 1972	1	18
172-42	April 20, 1972	3	1
172-42	April 21, 1972	3	20
172-42	May 8, 1972	3	7
172-42	May 9, 1972	2	8
172-43	May 16, 1972	3	6
172-43	April 6, 1972	3	13
172-43	April 21, 1972	4	17
172-43	May 9, 1972	2	20
172-43	June 14, 1972	5	20
172-43	June 15, 1972	5	9
172-44	April 5, 1972	2	8
172-44	May 8, 1972	2	1
172-44	May 24, 1972	3	17
172-44	June 14, 1972	5	2
172-45	April 5, 1972	5	12
172-45	April 21, 1972	3	4
172-45	June 6, 1972	1	2
172-45	May 9, 1972	2	13
172-45	May 24, 1972	1	8
172-45	May 23, 1972	2	1
172-39	May 8, 1972	2	19

Appendix VI - Continued

<u>Sample Number</u>	<u>Date</u>	<u>Run Number</u>	<u>Port Number</u>
172-46	April 5, 1972	1	9
172-46	June 14, 1972	5	3
172-47	April 6, 1972	2	19
172-47	April 21, 1972	1	15
172-47	June 14, 1972	2	13
172-47	May 9, 1972	3	4
172-47	June 20, 1972	3	1
172-47	June 20, 1972	2	6
172-47	June 20, 1972	1	17
172-47	June 20, 1972	1	20
172-48	June 1, 1972	3	12
172-48	April 5, 1972	2	18
172-48	May 8, 1972	5	16
172-48	May 24, 1972	1	17
172-43	June 2, 1972	1	9
172-48	June 2, 1972	5	13
172-48	June 2, 1972	4	2
172-49	April 5, 1972	3	9
172-49	June 2, 1972	1	14
172-50	June 1, 1972	2	2
172-50	April 6, 1972	4	8
172-50	May 8, 1972	1	10
172-50	June 2, 1972	3	6
172-51	April 5, 1972	1	5
172-51	May 8, 1972	4	13
172-51	April 21, 1972	2	16
172-51	May 24, 1972	2	14
172-51	May 10, 1972	4	7
172-51	April 25, 1972	1	15
172-51	June 2, 1972	4	3
172-51	June 14, 1972	5	6
172-52	April 6, 1972	3	15
172-52	May 24, 1972	5	14
172-53	April 5, 1972	2	13
172-53	April 21, 1972	1	1
172-53	May 8, 1972	2	17
172-53	May 24, 1972	2	19
172-53	June 2, 1972	2	11
172-53	June 14, 1972	5	7
172-53	June 20, 1972	2	8
172-53	June 20, 1972	1	18

Appendix VI - Continued

<u>Sample Number</u>	<u>Date</u>	<u>Run Number</u>	<u>Port Number</u>
172-54	June 1, 1972	4	15
172-54	April 6, 1972	5	12
172-54	May 9, 1972	4	20
172-55	April 6, 1972	2	1
172-55	April 21, 1972	4	18
172-55	May 8, 1972	3	19
172-55	May 24, 1972	1	7
172-55	May 23, 1972	2	9
172-55	June 14, 1972	5	8
172-55	June 15, 1972	5	10
172-55	June 20, 1972	1	19
172-56	April 6, 1972	5	13
172-56	May 24, 1972	4	7
172-56	June 20, 1972	2	9
172-57	April 5, 1972	2	5
172-57	April 21, 1972	3	18
172-57	May 8, 1972	1	13
172-57	May 24, 1972	1	6
172-57	June 2, 1972	5	3
172-57	June 20, 1972	2	10
172-58	June 1, 1972	5	20
172-58	April 6, 1972	1	15
172-58	May 8, 1972	3	10
172-58	May 24, 1972	4	18
172-58	June 13, 1972	2	14
172-58	June 1, 1972	3	1
172-58	June 20, 1972	2	11
172-59	April 19, 1972	5	16
172-59	April 5, 1972	4	12
172-59	May 8, 1972	4	3
172-59	May 8, 1972	3	15
172-59	June 2, 1972	5	19
172-60	June 1, 1972	2	12
172-60	April 6, 1972	4	4
172-60	June 2, 1972	3	9
172-60	June 14, 1972	5	9
172-61	April 20, 1972	2	15
172-61	June 1, 1972	2	16
172-61	April 6, 1972	2	6
172-61	April 25, 1972	3	4
172-61	May 9, 1972	1	11
172-61	June 12, 1972	3	8
172-61	June 15, 1972	5	11

Appendix VI - Continued

<u>Sample Number</u>	<u>Date</u>	<u>Run Number</u>	<u>Port Number</u>
172-62	April 20, 1972	2	4
172-62	June 1, 1972	1	12
172-62	April 6, 1972	5	3
172-62	April 21, 1972	5	17
172-62	May 24, 1972	2	11
172-62	June 15, 1972	5	13
172-63	April 20, 1972	2	14
172-63	June 1, 1972	1	5
172-63	May 24, 1972	2	2
172-63	June 2, 1972	5	4
172-64	April 6, 1972	2	9
172-64	May 9, 1972	3	11
172-64	April 26, 1972	2	15
172-64	June 15, 1972	5	14
172-65	April 20, 1972	4	6
172-65	April 5, 1972	4	19
172-65	April 21, 1972	4	9
172-65	May 8, 1971	5	15
172-65	May 9, 1972	1	14
172-65	June 2, 1972	2	8
172-66	June 1, 1972	5	3
172-66	April 21, 1972	5	18
172-66	April 6, 1972	4	10
172-66	May 24, 1972	5	12
172-66	June 20, 1972	2	13
172-66	June 15, 1972	5	17
172-66	June 20, 1972	3	3
172-67	April 21, 1972	1	5
172-67	April 6, 1972	5	19
172-68	April 20, 1972	2	12
172-68	June 1, 1972	4	5
172-68	April 21, 1972	2	11
172-68	April 5, 1972	5	6
172-68	May 9, 1972	2	16
172-68	May 23, 1972	5	17
172-68	June 15, 1972	5	19
172-63	April 6, 1972	3	12
172-63	April 21, 1972	1	11
172-64	April 21, 1972	5	8
172-66	June 9, 1972	3	7

Appendix VI - Continued

<u>Sample Number</u>	<u>Date</u>	<u>Run Number</u>	<u>Port Number</u>
172-69	April 19, 1972	4	7
172-69	May 8, 1972	4	10
172-69	May 9, 1972	2	3
172-69	June 2, 1972	5	17
172-70	April 6, 1972	2	15
172-70	May 24, 1972	5	7
172-70	June 20, 1972	5	20
172-70	June 20, 1972	5	9
172-70	June 2, 1972	5	14
172-71	April 20, 1972	5	11
172-71	April 6, 1972	4	16
172-71	June 2, 1972	5	5
172-71	June 20, 1972	2	15
172-72	April 20, 1972	2	19
172-72	April 5, 1972	1	13
172-72	May 8, 1972	4	7
172-72	May 24, 1972	1	3
172-72	June 13, 1972	1	17
172-72	June 15, 1972	4	12
172-73	April 20, 1972	4	8
172-73	April 5, 1972	4	6
172-73	April 21, 1972	4	5
172-73	May 8, 1972	5	12
172-73	May 24, 1972	3	3
172-73	June 20, 1972	3	5
172-74	June 1, 1972	4	8
172-74	April 5, 1972	3	18
172-74	April 21, 1972	3	11
172-74	May 24, 1972	3	2
172-74	June 2, 1972	4	4
172-74	June 20, 1972	1	17
172-75	June 1, 1972	1	17
172-75	April 6, 1972	5	2
172-75	May 8, 1972	1	19
172-75	May 9, 1972	3	9
172-75	May 24, 1972	1	13
172-75	June 13, 1972	3	8
172-76	April 20, 1972	5	16
172-76	June 14, 1973	2	7
172-76	May 24, 1972	2	5
172-76	June 2, 1972	4	6
172-76	June 20, 1972	3	6
172-76	June 20, 1972	1	18
172-70	May 9, 1972	4	10
172-70	June 1, 1972	4	17

Appendix VI - Continued

<u>Sample Number</u>	<u>Date</u>	<u>Run Number</u>	<u>Port Number</u>
172-77	June 1, 1972	5	6
172-77	April 16, 1972	2	13
172-77	June 2, 1972	1	12
172-77	June 20, 1972	1	19
172-78	April 20, 1972	5	19
172-78	April 6, 1972	2	14
172-78	May 8, 1972	2	10
172-78	June 14, 1972	2	1
172-78	May 9, 1972	4	16
172-78	June 12, 1972	1	9
172-78	June 16, 1972	1	6
172-78	June 20, 1972	4	9
172-78	June 20, 1972	3	17
172-79	April 6, 1972	1	10
172-79	April 24, 1972	1	7
172-79	May 24, 1972	3	8
172-79	June 16, 1972	1	8
172-79	June 20, 1972	5	5
172-79	June 20, 1972	5	19
172-80	April 6, 1972	3	17
172-80	May 24, 1972	5	9
172-80	June 13, 1972	1	10
172-81	April 20, 1972	1	20
172-81	April 5, 1972	4	11
172-82	June 1, 1972	4	18
172-82	April 5, 1972	5	1
172-82	April 21, 1972	3	14
172-82	May 8, 1972	4	8
172-82	June 9, 1972	?	?
172-82	May 9, 1972	4	15
172-82	May 24, 1972	5	11
172-82	June 2, 1972	4	12
172-82	June 16, 1972	1	9
172-83	May 17, 1972	3	7
172-83	June 14, 1972	2	8
172-83	May 24, 1972	2	16
172-84	May 16, 1972	1	1
172-84	June 15, 1972	1	9
172-84	April 5, 1972	3	12
172-84	May 24, 1972	5	16
172-84	April 26, 1972	2	6
172-84	June 2, 1972	2	10
172-81	June 1, 1972	3	8

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Appendix VI - Continued

<u>Sample Number</u>	<u>Date</u>	<u>Run Number</u>	<u>Port Number</u>
172-84	June 14, 1972	2	2
172-85	June 2, 1972	5	1
172-85	June 16, 1972	1	11
172-85	June 20, 1972	3	18
172-86	April 20, 1972	1	2
172-86	April 5, 1972	1	20
172-86	June 14, 1972	2	18
172-86	June 2, 1972	5	11
172-87	May 15, 1972	3	8
172-87	June 1, 1972	3	2
172-87	April 5, 1972	1	4
172-87	April 21, 1972	1	19
172-87	May 9, 1972	1	18
172-87	May 24, 1972	4	1
172-87	April 11, 1972	3	13
172-88	April 20, 1972	2	20
172-88	June 1, 1972	1	6
172-88	April 5, 1972	2	9
172-88	April 21, 1972	1	7
172-88	May 8, 1972	2	13
172-88	May 24, 1972	4	16
172-89	April 20, 1972	1	5
172-89	June 1, 1972	5	9
172-89	April 5, 1972	4	10
172-89	April 21, 1972	5	6
172-89	June 2, 1972	3	1
172-89	June 20, 1972	3	8
172-89	June 20, 1972	5	8
172-90	May 16, 1972	2	18
172-90	June 1, 1972	5	11
172-90	April 5, 1972	2	10
172-90	April 21, 1972	1	9
172-90	June 2, 1972	3	19
172-90	June 2, 1972	2	16
172-90	June 16, 1972	1	17
172-91	April 20, 1972	1	17
172-91	June 1, 1972	3	16
172-91	April 6, 1972	1	13
172-91	May 9, 1972	4	5
172-91	May 24, 1972	1	14
172-91	June 2, 1972	2	1
172-92	April 21, 1972	3	13
172-92	April 6, 1972	5	11
172-92	June 2, 1972	1	15
172-92	June 20, 1972	4	1
172-92	June 20, 1972	3	10
172-85	April 6, 1972	1	17
172-85	May 8, 1972	4	11
172-86	June 1, 1972	1	19
172-86	April 21, 1972	4	3
172-89	June 13, 1972	3	2

Appendix VI - Continued

<u>Sample Number</u>	<u>Date</u>	<u>Run Number</u>	<u>Port Number</u>
172-93	June 1, 1972	2	17
172-93	April 5, 1972	5	7
172-93	April 21, 1972	3	6
172-93	June 14, 1972	2	14
172-93	May 9, 1972	1	13
172-93	June 16, 1972	1	19
172-94	April 20, 1972	1	8
172-94	June 14, 1972	1	7
172-94	April 5, 1972	3	1
172-94	April 19, 1972	5	9
172-94	May 24, 1972	1	16
172-95	April 5, 1972	5	14
172-95	May 8, 1972	3	1
172-95	April 20, 1972	1	18
172-95	June 1, 1972	3	13
172-95	May 9, 1972	2	4
172-95	June 20, 1972	5	12
172-96	April 5, 1972	3	4
172-96	April 21, 1972	4	13
172-96	May 8, 1972	5	18
172-96	April 27, 1972	5	7
172-96	June 2, 1972	2	15
172-97	June 1, 1972	2	11
172-97	April 5, 1972	2	19
172-97	June 14, 1972	2	9
172-97	April 25, 1972	1	12
172-97	May 9, 1972	2	5
172-97	June 2, 1972	1	3
172-98	April 20, 1972	3	12
172-98	June 1, 1972	1	7
172-98	April 5, 1972	3	11
172-98	April 21, 1972	5	16
172-98	May 24, 1972	4	3
172-98	June 2, 1972	2	18
172-99	June 1, 1972	2	1
172-99	April 5, 1972	4	3
172-99	May 8, 1972	3	13
172-100	April 20, 1972	5	1
172-100	June 1, 1972	4	9
172-100	April 5, 1972	5	2
172-100	May 8, 1972	3	14
172-100	May 9, 1972	4	19
172-100	May 24, 1972	1	4
172-100	June 20, 1972	3	11

Appendix VI - Continued

<u>Sample Number</u>	<u>Date</u>	<u>Run Number</u>	<u>Post Number</u>
172-101	April 20, 1972	3	5
172-101	April 5, 1972	3	19
172-101	April 25, 1972	4	10
172-102	April 20, 1972	1	6
172-102	June 14, 1972	1	16
172-102	April 6, 1972	3	8
172-102	June 14, 1972	2	11
172-102	May 24, 1972	4	5
172-102	June 2, 1972	1	4
172-103	April 6, 1972	5	9
172-103	May 24, 1972	2	6
172-103	June 16, 1972	2	5
172-104	April 20, 1972	4	19
172-104	April 6, 1972	3	1
172-104	May 8, 1972	1	20
172-104	June 2, 1972	2	14
172-105	April 20, 1972	2	10
172-105	April 6, 1972	2	12
172-105	May 24, 1972	2	13
172-105	June 2, 1972	4	8
172-106	April 20, 1972	5	4
172-106	April 5, 1972	4	7
172-107	April 20, 1972	5	5
172-107	June 14, 1972	1	15
172-107	April 6, 1972	2	16
172-107	May 8, 1972	4	14
172-107	June 12, 1972	2	17
172-107	June 1, 1972	2	13
172-107	June 16, 1972	2	9
172-107	June 20, 1972	4	20
172-108	April 20, 1972	1	10
172-108	June 1, 1972	1	20
172-108	April 6, 1972	4	5
172-108	May 8, 1972	1	7
172-108	June 13, 1972	4	6
172-108	June 16, 1972	2	10
172-108	June 20, 1972	4	10
172-109	April 20, 1972	3	17
172-109	May 15, 1972	4	10
172-109	June 15, 1972	1	4
172-109	April 5, 1972	3	8
172-109	May 24, 1972	4	14
172-109	June 16, 1972	2	12

Appendix VI - Continued

<u>Sample Number</u>	<u>Date</u>	<u>Run Number</u>	<u>Port Number</u>
172-110	June 1, 1972	3	4
172-110	April 5, 1972	4	9
172-110	June 2, 1972	3	7
172-110	June 20, 1972	3	12
172-110	June 20, 1972	5	7
172-111	April 20, 1972	2	17
172-111	June 1, 1972	3	11
172-111	April 6, 1972	5	18
172-111	May 9, 1972	1	3
172-111	May 24, 1972	5	1
172-112	April 20, 1972	3	2
172-112	June 14, 1972	1	1
172-112	April 6, 1972	5	5
172-112	May 8, 1972	1	9
172-106	June 2, 1972	3	17
172-112	June 2, 1972	1	19
172-112	June 16, 1972	2	14
172-113	April 20, 1972	2	2
172-113	June 1, 1972	2	18
172-113	April 6, 1972	4	11
172-113	May 8, 1972	1	6
172-113	May 24, 1972	5	3
172-113	June 12, 1972	2	15
172-114	June 14, 1972	1	14
172-114	April 5, 1972	4	16
172-114	June 2, 1972	2	12
172-115	June 14, 1972	1	9
172-115	April 5, 1972	4	15
172-115	May 9, 1972	3	10
172-115	June 20, 1972	3	12
172-116	June 1, 1972	4	20
172-116	April 5, 1972	3	3
172-116	May 9, 1972	2	14
172-117	June 1, 1972	5	13
172-117	May 8, 1972	2	15
172-117	April 6, 1972	2	10
172-117	April 25, 1972	3	8
172-117	May 9, 1972	4	2
172-117	May 24, 1972	1	12
172-117	June 2, 1972	2	4
172-118	April 20, 1972	4	9
172-118	June 1, 1972	4	7
172-118	April 6, 1972	4	17
172-118	April 21, 1972	5	12
172-118	May 8, 1972	1	16

Appendix VI - Continued

<u>Sample Number</u>	<u>Date</u>	<u>Run Number</u>	<u>Port Number</u>
172-118	May 24, 1972	3	20
172-118	June 2, 1972	3	4
172-119	May 16, 1972	3	9
172-119	April 5, 1972	2	20
172-119	April 21, 1972	5	5
172-119	May 8, 1972	3	16
172-119	June 16, 1972	2	17
172-119	June 16, 1972	3	3
172-120	April 20, 1972	2	8
172-120	April 6, 1972	4	1
172-120	June 12, 1972	5	3
172-120	June 20, 1972	4	18
172-121	June 1, 1972	5	15
172-121	April 5, 1972	5	16
172-121	May 8, 1972	3	2
172-121	May 24, 1972	4	12
172-121	June 2, 1972	2	6
172-122	June 1, 1972	4	12
172-122	April 6, 1972	3	20
172-122	April 25, 1972	1	14
172-122	May 9, 1972	2	15
172-122	June 2, 1972	1	7
172-122	June 16, 1972	3	5
172-122	June 13, 1972	3	15
172-123	April 20, 1972	3	16
172-123	June 1, 1972	5	8
172-123	May 8, 1972	5	14
172-123	April 5, 1972	2	4
172-123	June 16, 1972	3	6
172-123	June 20, 1972	4	4
172-123	June 20, 1972	4	11
172-123	June 20, 1972	3	16
172-124	April 21, 1972	2	12
172-124	April 6, 1972	3	3
172-124	May 8, 1972	3	6
172-124	May 9, 1972	4	8
172-124	June 16, 1972	3	7
172-125	June 14, 1972	1	17
172-125	April 5, 1972	2	1
172-125	April 24, 1972	4	13
172-125	May 9, 1972	2	7
172-126	June 14, 1972	1	12
172-126	April 5, 1972	1	10
172-126	April 25, 1972	4	4
172-119	June 1, 1972	5	1

Appendix VI - Continued

<u>Sample Number</u>	<u>Date</u>	<u>Run Number</u>	<u>Port Number</u>
172-126	April 12, 1972	2	9
172-126	June 20, 1972	4	5
172-127	June 1, 1972	2	8
172-127	April 6, 1972	2	18
172-127	April 25, 1972	5	16
172-127	May 24, 1972	2	4
172-127	May 9, 1972	2	12
172-128	April 20, 1972	4	18
172-128	May 15, 1972	3	13
172-128	June 14, 1972	1	19
172-128	April 5, 1972	4	5
172-128	April 21, 1972	5	7
172-129	May 15, 1972	5	17
172-129	June 1, 1972	1	14
172-129	April 5, 1972	5	10
172-129	May 8, 1972	5	6
172-129	June 20, 1972	4	12
172-129	June 20, 1972	4	14
172-129	June 20, 1972	4	17
172-130	June 1, 1972	1	2
172-130	April 6, 1972	4	6
172-130	April 21, 1972	1	10
172-130	May 8, 1972	2	12
172-130	June 2, 1972	3	14
172-130	June 13, 1972	2	2
172-130	June 20, 1972	4	17
172-131	April 20, 1972	1	15
172-131	April 5, 1972	1	3
172-126	June 15, 1972	5	1
172-131	April 21, 1972	5	11
172-131	June 2, 1972	5	7
172-131	June 16, 1972	3	8
172-132	April 20, 1972	5	3
172-132	June 1, 1972	2	10
172-132	April 5, 1972	2	16
172-132	May 8, 1972	2	4
172-132	May 9, 1972	4	12
172-133	April 20, 1972	4	2
172-133	May 16, 1972	5	10
172-133	April 6, 1972	1	8
172-133	April 21, 1972	2	1

Appendix VI - Continued

<u>Sample Number</u>	<u>Date</u>	<u>Run Number</u>	<u>Port Number</u>
172-133	June 14, 1972	2	16
172-133	May 9, 1972	3	19
172-133	June 2, 1972	4	15
172-134	April 20, 1972	3	11
172-134	June 1, 1972	4	3
172-134	April 6, 1972	3	10
172-134	April 21, 1972	5	15
172-134	May 8, 1972	2	8
172-134	May 9, 1972	3	13
172-134	May 24, 1972	4	9
172-135	April 20, 1972	5	8
172-135	June 1, 1972	1	9
172-135	April 21, 1972	3	5
172-135	May 9, 1972	4	6
172-135	June 2, 1972	1	13
172-135	June 15, 1972	2	17
172-136	May 16, 1972	4	11
172-136	June 1, 1972	3	19
172-136	June 2, 1972	4	20
172-137	June 1, 1972	5	4
172-137	April 6, 1972	5	20
172-137	May 24, 1972	3	19
172-137	June 2, 1972	3	2
172-138	April 20, 1972	5	10
172-138	April 6, 1972	2	7
172-138	April 21, 1972	2	6
172-138	June 2, 1972	1	17
172-138	June 16, 1972	3	9
172-139	June 1, 1972	5	16
172-139	April 6, 1972	5	1
172-139	May 8, 1972	5	3
172-139	May 24, 1972	3	12
172-139	June 14, 1972	1	11
172-139	June 20, 1972	4	8
172-140	April 20, 1972	4	16
172-140	June 1, 1972	2	7
172-140	April 5, 1972	4	1
172-140	May 8, 1972	5	11
172-140	June 14, 1972	2	3
172-140	June 2, 1972	5	2
172-140	June 16, 1972	3	11
172-141	June 1, 1972	1	10

Appendix VI - Continued

<u>Sample Number</u>	<u>Date</u>	<u>Run Number</u>	<u>Port Number</u>
172-141	April 20, 1972	4	3
172-141	April 6, 1972	1	7
172-141	April 21, 1972	2	2
172-141	April 25, 1972	5	4
172-141	May 9, 1972	1	9
172-141	May 24, 1972	2	17
172-141	June 16, 1972	3	12
172-142	June 1, 1972	1	11
172-142	April 5, 1972	5	13
172-142	April 21, 1972	1	17
172-142	June 2, 1972	3	15

Appendix VII
Federal Trade Commission
Data Dated August 1972
Calculational Errors
Brand Cigarettes

<u>Sample Number</u>	<u>Run</u>	<u>Port</u>	TPM (Dry)		<u>See Note Below</u>
			<u>Original</u>	<u>Corrected</u>	
<u>A. Calculational Errors</u>					
172-26	2	14	14.6	14.8	1
172-23	2	12	27.7	25.8	2
172-69	4	10	18.3	18.8	3
172-99	2	6	14.2	15.4	4

B. Impossible Figures

172-59	1	13	22.2	?	5
172-87	3	6	17.5	?	6
172-92	4	1	30.4	?	7
172-110	2	20	12.1	?	8
172-15	2	1	1.3	?	9
172-13	1	20	21.4	?	10

NOTE: Explanation of errors

- Water $((63.7 \div 130.7) + (-.0849)) \div (.0449 \times 5) = 1.79$ not 1.95 and therefore TPM (Dry) $17.7 - 1.79 - 1.12 = 14.8$ not 14.6
- Water $((127.0 \div 159.0) + (-.1646)) \div (.0319 \times 5) = 3.98$ not 2.05 and therefore TPM (Dry) $31.1 - 3.98 - 1.37 = 25.8$ not 27.7
- TPM (Wet) $((32.3041 - 32.1930) \times 1000) \div 5 = 22.2$ not 21.7 and therefore TPM (Dry) $22.2 - 2.01 - 1.39 = 18.8$ not 18.3
- Water $((82.3 \div 139.5) + (-.1253)) \div (.0430 \times 5) = 2.16$ not 3.33 and therefore TPM (Dry) $18.6 - 2.16 - 1.09 = 15.4$ not 14.2
- TPM (Wet) Weight after (32.0085) is lower than weight before (32.8699). This is impossible.
- TPM (Wet) $((32.9855 - 31.8804) \times 1000) \div 5 = 221.0$. Impossible.
- TPM (Wet) Weight after (32.1066) is less than weight before (32.9289). This is impossible.
- TPM (Wet) $((33.9424 - 32.8817) \times 1000) \div 5 = 212.1$. This is impossible.
- TPM (Wet) The weight after is given as 3.8483. This is impossible.
- TPM (Wet) The weight after is given as 3.9574. This is impossible.

PM3001060916

Appendix VIII
Federal Trade Commission
Data Dated August 1972
Calculational Errors
Monitor Cigarettes

<u>Date</u>	<u>Run</u>	<u>Port</u>	<u>TPM (Dry)</u>		<u>See Note</u>
			<u>Original</u>	<u>Corrected</u>	
<u>A. Calculational Errors</u>					
13 June	3	10	16.2	17.3	1
7 June	5	18	18.8	18.4	2
5 April	1	15	18.7	19.0	3
23 May	4	16	20.8	18.8	4
<u>B. Impossible Figures</u>					
11 May	3	19	17.9	?	5
27 March	5	20	18.5	?	6
20 June	5	4	18.9	?	7

NOTE: Explanation of errors.

1. Water $((67.3 \div 158.3) + (-.1078)) \div (.0385 \times 5)$
 $= 1.65$ not 2.77 and therefore TPM(Dry) $20.3 - 1.65 - 1.31 = 17.3$ not 16
2. TPM (Wet) $((32.5522 - 32.4386) \times 1000) \div 5 = 22.7$ not 23.1
and therefore TPM (Dry) $22.7 - 2.87 - 1.42 = 18.4$ not 18.8
3. Water $((112.3 \div 137.9) + (-.1672)) \div (.0453 \times 5) = 2.86$ not 3.20
and therefore TPM (Dry) $23.3 - 2.86 - 1.40 = 19.0$ not 18.7
4. TPM (Wet) $((34.4330 - 34.3170) \times 1000) \div 5 = 23.2$ not 25.2 and
therefore TPM (Dry) $23.2 - 2.95 - 1.41 = 18.8$ not 20.8
5. TPM (Wet) $((33.5564 - 32.4479) \times 1000) \div 5 = 221.7$. This
is impossible.
6. TPM (Wet) $((33.9104 - 32.8012) \times 1000) \div 5 = 221.8$. This is
impossible.
7. TPM (Wet) Weight after given as 3.9704 . This is impossible.